REAL NUMBERS

WHY PAY-FOR-USE COMPUTING PAYS OFF

THIS COMPUTING MODEL LETS CIOS SHIFT I.T. RISKS TO VENDORS—AND TRIM OPERATING COSTS IN THE PROCESS.

BY PAUL A. STRASSMANN

WE ARE AT THE START OF AN ERA OF SO-called pay-for-use computing, which stands to shift information-technology risks from customers to vendors.

Under the old computing model, a company would purchase a computer with excess capacity, gradually build up the computer's utilization until performance was degraded, and then upgrade equipment when necessary.

In contrast, the pay-for-use model relies entirely on the availability of services delivered by a computer vendor. Infrastructure services, such as bug fixes, computer security safeguards, software upgrades, disk memory additions and hardware enhancements, become the responsibility of the vendor, not the customer.

Depending on the complexity of its applications, a company could, in the foreseeable future, shift perhaps as much as a third of I.T. operating costs to the provider of computing services.

The leading vendor of pay-for-use is Hewlett-Packard. It delivers applications and desktops from a centrally managed infrastructure. The company also offers a Virtual Desktop Infrastructure, which provides customers with the hardware, management software, virtualization software and services they need to implement a secure alternative to traditional desktop computing.

Sun Microsystems provides computing power at $1 per CPU or processing hour. There are no other fees and only a simple click-through license. The processing is protected by defenses at every level of the company's Sun Grid. A new application programming interface allows developers to create and submit jobs to Sun Grid. That allows Java applications to log in, create resources, submit jobs for execution and download run results.

Microsoft has announced pay-as-you-go personal computing offerings, powered by FlexGo technology, that enable customers in emerging markets to buy software online. Customers can get a low-cost, Windows-enabled PC using prepaid cards or by obtaining a monthly subscription. This is primarily a vehicle for marketing Microsoft Office and Vista software in developing countries; it is due to be rolled out sometime in 2008.

An interesting entry in the pay-for-use competition comes from Amazon.com. The Amazon Elastic Compute Cloud is a Web service that provides flexible computing power. It changes the economics of computing by requiring payment for only the capacity used. This includes 10 cents per computing hour consumed, 10 cents per gigabyte of data transfer in and 18 cents per gigabyte for data transfer out. There is no minimum fee.

Other vendors have entered the pay-for-use market. Cisco offers a document manager, an online calendar, Web meetings, a Web database, expense reports and other features for $180 per year per seat. Google sells Gmail, a calendar, document and spreadsheet collaboration, and other features for about $50 per year per seat.

How can these vendors make the numbers work? By using virtualization to improve hardware utilization. That's because virtualization makes it possible to process applications on computers that can simultaneously handle tens, and ultimately hundreds, of job streams.

> **Depending on the complexity of its applications, a company could move as much as one-third of I.T. costs to the provider of computing services.**

Large numbers work in favor of the vendor. The processing power of a single multiprocessor can keep computing utilization to better than 70% while intermingling a large number of separate job streams. Such multiprocessors are also able to distribute the workload across several geographically separate data centers. Individual servers, processing locally one application job stream at a time, can at best achieve 15% utilization as measured over a 24/7 time period.

Large organizations such as financial services firms can potentially realize the same advantages as vendors (see "Benefits of Server Virtualization," p. TK, for a calculation of potential gains). In reality, however, such improvements are rarely achieved because of the organizational and technical obstacles impeding corporatewide server consolidations.

A CIO who decides to pursue a pay-for-use computing strategy will have to choose whether to continue installing computing capabilities for self-sufficiency as before, contract for pay-for-use with the vendor's equipment on-site, or buy pay-for-use as a service. Most likely, CIOs will pursue a combination of the three major options, taking advantage of what is economically and operationally most feasible. In this way, organizations will have removed many of the technology risks in capacity and configuration management. ◄

PAUL A. STRASSMANN (PAUL@STRASSMANN.COM) IS A FORMER TECHNOLOGY EXECUTIVE AT GENERAL FOODS, KRAFT, XEROX, THE DEPARTMENT OF DEFENSE AND NASA.